

Recovery Plan Action Status

Plan Name: Loach Minnow Recovery Plan

Plan Status: Final

Plan Date: 30-Sep-91

Lead Agency: USFWS

Lead Office: Arizona Ecological Services Field Office

(2602)

242-0210)

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Loach minnow (Tiaroga cobitis)	1	1.1	Identify all populations and determine level of protection	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Forest Service , Bureau Land Management , Fisheries Resources	Research: Population Surveys	Species Expert	Multiple agencies participate in surveys in different areas. The Apache-Sitgreaves National Forests initiated a monitoring effort for the Blue River this year, which will set up standardized survey locations.
Loach minnow (Tiaroga cobitis)	2	1.10	Acquire available lands and associated water rights	Not Started			U.S. Fish and Wildlife Service, Forest Service , Bureau Land Management , Wildlife Resources	Acquisition	Species Expert	No acquisitions have been made at this time.
Loach minnow (Tiaroga cobitis)	2	1.11	Protect acquired lands	Not Started			U.S. Fish and Wildlife Service, Forest Service , Bureau Land Management , Wildlife Resources	Acquisition	Species Expert	No acquisitions have been made at this time.
Loach minnow (Tiaroga cobitis)	2	1.2	Prioritize populations based on need for protection	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Desert Fishes Recovery Team	Management	Species Expert	Prioritization developed through multi-agency meetings. Will be formalized by newly appointed Recovery Team, which will begin meeting in Fall 2011.
Loach minnow (Tiaroga cobitis)	1	1.3	Designate critical habitat	Ongoing Current	FY 2010	FY 2012	U.S. Fish and Wildlife Service	Management: Other	Species Expert	Current designation voluntarily remanded but remains in place until redesignated. Proposed rule published in the FR on October 28, 2010, with a final rule due to publish February 2012.

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Loach minnow (Tiaroga cobitis)	1	1.4	Enforce Laws and regulations	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Forest Service , Bureau Land Management , Bureau of Reclamation	Management: General	Species Expert	Participate in various ongoing activities to affect this. Currently working on the Gila River Water Rights Adjudication and other projects. Regularly work on projects through section 7.
Loach minnow (Tiaroga cobitis)	1	1.5	Discourage detrimental land and water uses	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Forest Service , Bureau Land Management , Bureau of Reclamation	Management: General	Species Expert	Participate in various ongoing activities to affect this. Currently working on the Gila River Water Rights Adjudication and other projects, as well as Verde River groundwater withdrawal project.
Loach minnow (Tiaroga cobitis)	1	1.6	Insure natural flows	Not Started			U.S. Fish and Wildlife Service, Forest Service , Bureau Land Management , Wildlife Resources , Bureau of Reclamation	Acquisition	Species Expert	No instream flow purchases made or identified to date. We do participate with several groups in trying to ensure adequate flows remain in the Verde River and the upper Gila River.

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Loach minnow (Tiaroga cobitis)	1	1.8	Identify need for and construct barriers	Ongoing Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Forest Service , Bureau Land Management , Bureau of Reclamation	Management: Habitat Maintenance and Manipulation	Contract, Species Expert	Bureau of Reclamation completing this task under provisions of the CAP Biological Opinion. We provide input on suitability of barrier sites. Barriers constructed at Aravaipa Creek, Bonita Creek, and Hot Springs Canyon. Revised biological opinion completed in 2008. Barrier construction feasibility study completed for the Verde River. Preliminary NEPA work underway for Spring Creek barrier and Redfield Canyon. Preliminary NEPA work underway for the Blue River barrier.
Loach minnow (Tiaroga cobitis)	2	1.9	Identify available unprotected private lands and water rights	Not Started			U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Wildlife Resources , Desert Fishes Recovery Team	Acquisition	Species Expert	
Loach minnow (Tiaroga cobitis)	1	2.1 and 2.2	Establish standard monitoring locations and techniques	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Forest Service , Bureau Land Management , Desert Fishes Recovery Team	Research: Population Surveys	Species Expert	Standard survey techniques are known; variety of techniques applied depending on local habitat conditions. Most occupied habitat regularly surveyed by a variety of agencies. Some guidance may be developed by the newly formed Recovery Team, which will meet in Fall 2011.

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Loach minnow (Tiaroga cobitis)	2	2.3	Establish and maintain computerized database	Ongoing Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, Arizona Game and Fish Department	Other: Information and Education	Contract, Graduate Student, Species Expert	SONFishes database was completed in 1999. The AGFD maintains and updates the Heritage Database Management System, and provides FWS with regular updates. The NMDGF has developed a Gila River rare species database as well. The Recovery Team, which will meet in Fall FY11, will work on determining how to develop one centralized database that is regularly updated.
Loach minnow (Tiaroga cobitis)	1	2.4	Determine natural variation in abundance and age-class structure	Ongoing Not Current	Prior to FY 1995		U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Forest Service , Bureau Land Management	Research: Population Surveys	Contract, Graduate Student, Species Expert, Volunteer	Some research completed in this area; data from Aravaipa Creek used in these types of analyses.
Loach minnow (Tiaroga cobitis)	1	2.4.1	Determine standard methods for quantifying abundance	Ongoing Not Current	Prior to FY 1995		U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Forest Service , Bureau Land Management	Research: Population Surveys	Contract, Graduate Student, Species Expert	Some research completed in this area; additional research needed but none ongoing at this time.

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Loach minnow (Tiaroga cobitis)	1	2.4.2	Conduct bi-annual population estimates	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Forest Service , Bureau Land Management	Research: Population Surveys	Graduate Student, Species Expert, Volunteer	Annual surveys completed at Eagle Creek, Aravaipa Creek, the Tularosa River, the San Francisco, and the upper Gila River. Surveys completed this year in Black River and Blue River systems by various entities. Efforts underway to establish survey schedule for the Blue River, led by the Forest Service.
Loach minnow (Tiaroga cobitis)	1	2.5,2.5.1,2.5.2	Monitor community composition including range of natural variation	Ongoing Not Current	Prior to FY 1995		U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Forest Service , Bureau Land Management	Research: Population Surveys	Graduate Student, Species Expert, Volunteer	Surveys completed by a variety of agencies and individuals.
Loach minnow (Tiaroga cobitis)	1	2.6	Determine genetic characteristics of existing populations	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Forest Service	Research: Genetics	Graduate Student	Work completed in Arizona streams in 1993. Coordinating with geneticists on specific questions in August 2010.
Loach minnow (Tiaroga cobitis)	2	3.1 - 3.2.2	Determine significance of interaction with non-native fishes	Ongoing Not Current	Prior to FY 1995		U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Forest Service , Bureau Land Management	Research: Competition, Research: Predation	Species Expert	Some research completed, additional research needed.
Loach minnow (Tiaroga cobitis)	2	4.1 - 4.6	Quantify effects of physical habitat modification	Ongoing Not Current	FY 2010		U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Forest Service , Bureau Land Management	Research: Habitat Requirements	Species Expert	

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Loach minnow (Tiaroga cobitis)	2	5.1 and 5.2	Identify management areas and determine necessary habitat improvements	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department, Forest Service, Bureau Land Management, Desert Fishes Recovery Team	Management: Habitat Maintenance and Manipulation	Species Expert	Recovery Team newly formed and will meet Fall 2011. The Team will likely address this through recovery plan updates.
Loach minnow (Tiaroga cobitis)	3	5.3	Implement habitat improvements	Ongoing Current	FY 2007		U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department, Forest Service, Bureau Land Management	Management: Habitat Maintenance and Manipulation	Species Expert	Some work completed through barrier construction, as overseen by Bureau of Reclamation in fulfillment of biological opinion requirements on the CAP. Barriers have been completed at Aravaipa and Bonita Creeks and Hot Springs Canyon in Arizona. Early NEPA review underway for barrier construction for the Blue River and Spring Creek in Arizona.
Loach minnow (Tiaroga cobitis)	3	6.1	Identify stocks to be used for reintroduction	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Desert Fishes Recovery Team	Research: Propagation	Species Expert	Work being completed by the Bureau of Reclamation through contract with Arizona Game and Fish Department as part of the biological opinion on the CAP. A draft list of source populations has been developed, and will be formalized through the newly formed Recovery Team planning process due to begin in Fall 2011.

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Loach minnow (Tiaroga cobitis)	3	6.2 - 6.2.5	Identify and prepare sites for reintroduction	Ongoing Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Forest Service , Bureau Land Management , Desert Fishes Recovery Team	Research: Reintroduction	Species Expert, Volunteer	Reintroductions have now occurred at the Muleshoe Preserve, Fossil Creek, and Bonita Creek. Proposed project development is underway for the Blue River and Spring Creek.
Loach minnow (Tiaroga cobitis)	3	6.3 and 6.4	Reintroduce into selected reaches and monitor	Ongoing Current	FY 2000 - FY 2004	FY 2006	U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Forest Service , Bureau Land Management	Research: Reintroduction	Species Expert	Reintroductions have now occurred at the Muleshoe Preserve, Fossil Creek, and Bonita Creek. Proposed project development underway for the Blue River and Spring Creek. Annual monitoring is completed at all reintroduction sites. Augmentation occurs as necessary following review of results of monitoring, and if fish are available for augmentation.
Loach minnow (Tiaroga cobitis)	3	6.5 and 6.6	Determine reasons for success/failure and rectify as necessary	Planned	FY 2008	FY 2013	U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Forest Service , Bureau Land Management , Desert Fishes Recovery Team	Research: Reintroduction	Species Expert, Volunteer	Each reintroduction project includes a commitment to monitoring and population augmentation, most of them for a five-year period. At the end of that time, each project will be evaluated for success/failure. Generally, a self-sustaining population will be considered present if we have documented reproduction and population growth through monitoring efforts.

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Loach minnow (Tiaroga cobitis)	2	7.1 - 7.3.3	Determine quantitative criteria for describing a self-sustaining population	Planned	FY 2008	FY 2013	U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Forest Service , Bureau Land Management , Desert Fishes Recovery Team	Research: Reintroduction	Species Expert, Volunteer	Criteria have been developed individually for repatriation projects. Generally, five years of follow-up monitoring and population augmentation will occur, with self-sustaining populations determined to be present with reproduction and population growth have been verified through monitoring.
Loach minnow (Tiaroga cobitis)	3	8.1	Select stocks to be used for hatchery brood stock	Ongoing Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Fisheries Resources , Desert Fishes Recovery Team	Research: Propagation	Species Expert	We serve as joint lead with Arizona Game and Fish Department in these determinations. We work cooperatively with NMDGF and the NMESO. A draft list of stocks to be used has been developed and will be formalized under the newly formed Recovery Team due to meet in Fall 2011. Stocks currently in captivity for breeding from Aravaipa Creek, Gila River (NM), and Blue River. There are ongoing efforts to obtain stock from Eagle Creek and Black River.

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Loach minnow (Tiaroga cobitis)	3	8.2	Collect hatchery stocks	Ongoing Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Fisheries Resources	Research: Propagation	Contract	To be completed by the Arizona Game and Fish Department under contract to the Bureau of Reclamation in partial fulfillment of biological opinion on the CAP. We have assisted in collection activities whenever possible. Stock has been collected from the Blue River and Aravaipa Creek in FY10. Ongoing efforts to collect stock from Eagle Creek and the Black River system. Limited collection efforts due to concerns that removal of too many fish will harm source populations in Aravaipa Creek.

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Loach minnow (Tiaroga cobitis)	3	8.3	Hold and maintain stocks in a hatchery	Ongoing Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, Fisheries Resources	Research: Propagation	Contract	To be completed by the Arizona Game and Fish Department under contract to the Bureau of Reclamation in partial fulfillment of biological opinion on the CAP. Stock now in captivity at Bubbling Ponds from Blue River, Gila River (NM), and Aravaipa Creek. This facility was constructed specifically for captive propagation of spinedace and loach minnow. Improvements in propagation techniques resulted in greater success and more fish for reintroduction efforts in FY10 than FY09. Annual meetings are held to discuss any necessary changes at the facility, including in FY11.
Loach minnow (Tiaroga cobitis)	3	8.4 and 8.5	Evaluate and assess propagation techniques and life-cycle requirements	Ongoing Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Fisheries Resources	Research: Propagation	Contract	To be completed by the Arizona Game and Fish Department under contract to the Bureau of Reclamation in partial fulfillment of biological opinion on the CAP. One report on suggested captive propagation techniques has been completed. Additional work will likely be completed through development of the Recovery Plan, to be initiated by the newly formed Recovery Team in FY11.

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Loach minnow (Tiaroga cobitis)	3	8.6	Supply hatchery reared fish as needed	Ongoing Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Forest Service , Bureau Land Management , Fisheries Resources , Bureau of Reclamation	Management: Propagation	Species Expert	To be completed by the Arizona Game and Fish Department under contract to the Bureau of Reclamation in partial fulfillment of biological opinion on the CAP. Hatchery reared fish have been used in reintroduction projects at the Muleshoe Preserve, Fossil Creek, and Bonita Creek. We are still learning how to successfully captively propagate these species. Poor results in late FY09/early FY10 resulted in few fish being available for augmentation efforts. We have had greater success in FY10, which will allow for higher numbers for use in augmentation efforts in Fall 2010.
Loach minnow (Tiaroga cobitis)	2	9.1 - 9.1.5	Provide information and education relative to the species to the public sector	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Forest Service , Public Affairs , Bureau Land Management , Fisheries Resources , Bureau of Reclamation	Other: Information and Education	Species Expert	We have coordinated with the Arizona Game and Fish Department and SeaLife Aquarium in Tempe, Arizona. Loach minnow will be one of the native species placed on exhibit at the aquarium, following permit approval. SeaLife estimates it has greater than 100,000 visitors annually.

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Loach minnow (Tiaroga cobitis)	2	9.2.1 - 9.2.4		Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, Arizona Game and Fish Department , Forest Service , Bureau Land Management , Fisheries Resources , Bureau of Reclamation	Other: Information and Education	Species Expert	Ongoing.